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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Guido GhisolfiFor: Recyclable Mutli-Layer Material in  
Polyester Resin

Serial No. 09/334,891

Filed: June 17, 1999

) Docket No. MG029A

) Art Unit: 1772

) Examiner: Marc A. Patterson

) I hereby certify that this correspondence is  
) being facsimile transmitted to the United States  
) Patent and Trademark Office to Fax Number  
) 703-872-9306 on November 4, 2004.) Edwin A. Sisson  
) Edwin A. Sisson, Registration No. 48,723Commissioner for Patents  
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## DECLARATION OF DR. KEVIN L. ROLICK

I, Kevin L. Rollick, PhD, hereby declare that:

1. I am a resident of Monroe Falls, Ohio and am employed as a Senior Research Scientist at M&G Polymers, USA. I am not an inventor of the subject matter disclosed or claimed in the subject patent application.

2. My educational background includes a Bachelor of Science from Indiana University of Pennsylvania (cum laude, 1975); and a PhD in Organic Chemistry and minor in Inorganic Chemistry from Indiana University at Bloomington, Indiana (cum laude, 1981).

3. I am a named inventor in 13 United States letters patents, six of which relate to the field of polyester polymers. Four of the six patents relate to the foaming of polyester to produce heat resistant crystallized polyester trays.

3. I have been employed by M&G Polymers USA, LLC, and its predecessors (The Goodyear Tire & Rubber Company and Shell Oil Company) for approximately 23 years and

have worked in the field of polymer resins for twelve years. I am presently a Senior Research Chemist at M & G Polymers USA, LLC's research facility located in Sharon Center, Ohio.

4. I have authored or co-authored seven technical papers, one of which was awarded the Best Paper Award.

5. For five years, I was a member of the foamed crystallized polyester tray research group. Our research centered on foaming polyester and subsequently making crystallized trays for high temperature applications. As an ex-employee of Shell and researcher in tray resins, I am extremely familiar with the polyester resin Shell 10480 used in Examples 1 - 3 and the nucleator Shell 10485 used in all the examples of Harfmann.

6. I have reviewed United States Patent 5,681,865 to Harfmann and have concluded that the containers of Harfmann must have more than 15% crystallinity. This conclusion is based on the fact that the sheet produced in Harfmann has 8-15% crystallinity (Column 8, lines 20-22) which he then thermoforms and further crystallizes the foamed polyester in hot molds (Column 8, lines 12-15) for high temperature applications. First, by definition, a sheet with 15% crystallinity which is further crystallized must have crystallinity greater than 15%. Second, as outlined below, the crystallinity must be greater than 15% to achieve a high temperature service.

7. During my involvement in foamed tray research, I conducted many experiments foaming PET for polyester trays for high temperature applications. Since then I have reviewed our internal reports regarding minimum crystallization levels and discussed those reports with several technicians who conducted the studies. The suitability of a tray for high temperature service is determined by measuring the tray's deformation at 400°F. In general, crystallized polyester tray requires a minimum of 25% crystallinity to maintain its shape at 400°F. A minimum of 25-30% crystallinity is required for foamed polyester trays to maintain their shape at 400°F.

8. The research demonstrated that many problems had to be overcome to reach a level of crystallinity which made the container heat stable. Because the "amorphous" foam had varying crystallinity levels (which is also described in Harfmann at Column 8, lines 20-23),

the final crystallinity level in the tray had to be pushed much higher in order to build in enough crystallinity to prevent the crystals formed during the sheet forming stage from resuming their original orientation when heated. The obstacles were primarily overcome by the use of Shell 10485, a nucleation agent which promotes rapid crystallization.

9. I have reviewed Harfmann, and can state that the containers described in Harfmann must have more than 15% crystallinity. First, Harfmann describes the containers as containers for high service temperature. Second, Harfmann thermoforms the container from the sheet in a hot mold to crystallize the polyester and it is well understood that 25-30% crystallinity is needed to prevent deformation. Third, all of Harfmann's examples contain a nucleator. The purpose of the nucleator is to reach the highest level of crystallinity possible in the shortest time possible. Because Harfmann is trying to make a heat stable container, the crystallinity must be greater than 15%, because at 15% or lower, the container will deform in the presence of heat.

10. I declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the U.S. Code and that such willful false statements may jeopardize the validity of this application and any patent issuing thereon.

Respectfully submitted,

*Dr. Kevin L. Rollick Ph.D.*

November 4, 2004

Dr. Kevin L. Rollick, PhD